None of the comparisons were significantly different.

Conclusion: Excimer Laser Angioplasty compared to Balloon Angioplasty in long coronary lesions yields similar results with respect to longterm clinical and angiographic outcome.

10:45

782-2 Longterm Outcome of Excimer Laser Angioplasty Versus Balloon Angioplasty in Functional and Total Coronary Occlusions

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From September 1991 until November 1993 we randomized 103 patients with functional and total coronary occlusions to Excimer Laser Coronary Angioplasty (ELCA, n = 49) or Balloon Angioplasty (BA, n = 54) as part of a multi-center trial (AMRO) comparing ELCA versus BA in type B or C-lesions. We report on the longterm clinical and angiographic outcome of this subgroup. Procedural success (PS) was defined as <50% residual stenosis at the end of the procedure. Clinical endpoints were: death (D), myocardial infarction (MI), coronary bypass surgery (CABG) or repeat angioplasty (re-PTCA) of the randomized segment within 6 months follow-up. Angiographic endpoint was the net gain (NG) in minimal lumen diameter at six months follow-up relative to the pre-procedural baseline determined by a computer-assisted automated edge detection algorithm (CAAS II). Functional status (FS) at six months was graded according to the Canadian Cardiovascular Society classification.

Results: Baseline patient characteristics were similar in both groups. ELCA was followed by BA in all patients. Re-occlusion of the treated segment during 6 months follow-up was 33% in the ELCA group versus 23% in the BA group (not significant).

	n	PS (%)	D/MI/CABG/re-PTCA	NG ± SD (mm)	FS (0-IV)
ELCA	49	65	0/1/4/10	0.7 ± 0.7	29/6/10/4/0
BA	54	61	0/3/2/8	0.7 ± 0.7	27/5/12/8/2

None of the comparisons were significantly different.

Conclusion: Excimer Laser Angioplasty compared to Balloon Angioplasty in functional and total coronary occlusion yields similar results with respect to longterm clinical and angiographic outcome.

11:00

782-3 Rotational Atherectomy vs. Excimer Laser Angioplasty: A Multi-variable Analysis of Early and Late Procedural Outcome

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Rotational atherectomy (RA) and excimer laser angioplasty (ELCA) are commonly used in lesions unsuitable for balloon angioplasty, but few comparative outcome studies have been performed using these devices in matched subsets. To address this issue, we reviewed the clinical course of 696 patients undergoing RA or ELCA in lesions suitable for either technique. Vein grafts, long (≥20 mm), heavily calcified, thrombus-containing lesions, and total occlusions were excluded. Angiographic (<50% final stenosis), procedural (Proc-S) (<50% stenosis and no in-hospital complications [death, Q-wave myocardial infarction QWMI or CABG] and clinical (Proc-S without rePTCA <14 days) success, and late events (death, QWMI, target lesion revascularization [TLR, CABG or repeat PTCA]) were recorded for 12 months after the procedure. Multivariate logistic regression analysis was performed to evaluate the ELCA effect, accounting for disparities in clinical (unstable angina, diabetes, multivessel disease) and angiographic (AHA/ACC classification, restenosis, length, calcium, eccentricity, angulation, irregularity, and pre-%DS) variables. ELCA remained an independent predictor for angiographic (OR = 3.72, $p < 0.005$), procedural (OR = 2.96, $p < 0.01$), and clinical (OR = 2.31, $p < 0.05$) failure. Although no ELCA effect was noted for late clinical outcome ($p = 0.56$), a trend toward more ELCA-related events was seen in TLR (RR = 1.43; $p = 0.06$). *In conclusion:* In lesion subsets suitable for treatment with either device, ELCA-treated patients had: 1) lower Proc-S; 2) more acute complications; and 3) a trend toward more frequent TLR than RA-treated patients.

	RA (%)	ELCA (%)
# Patients/Lesions	518/682	178/217
Age (years)/Diabetes Mellitus	63/25	63/34†
Unstable Angina/Multivessel Disease	55/73	70†††/83††
History of Restenosis/Pre TIMI < 3	37/3.3	21†††/13†††
Lesion Length (mm)/Calcium	6.8/64	8.8†††/36†††
Lesion Angulation > 45°/Irregularity	27/9	12†††/17††
Dissections/Perforations	13/0.5	32†††/2.0
Lesion Eccentricity/Ostial	65/22	48†††/16†
Proc-S/Major Complications	95/2.7	87†††/9†††
Late (12 month) Major Events/TLR	31/29	40†/40†

$^{\dagger}p < 0.05$, $^{\dagger\dagger}p < 0.01$, $^{\dagger\dagger\dagger}p < 0.001$

11:15

782-4 Influence of Epicardial Lesion Location on Late Luminal Renarrowing and Angiographic Outcome After Successful Balloon Angioplasty, Directional Atherectomy, Stent Implantation and Excimer Laser Angioplasty

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Left anterior descending (LAD) coronary artery location is reported to be associated with increased propensity to restenosis after intervention. This study, in 3736 patients, investigates whether this finding is equally applicable to intervention with balloon angioplasty (BA, n = 3797 lesions), directional atherectomy (DCA, n = 200 lesions), Palmaz-Schatz stent implantation (PS, n = 229 lesions) and excimer laser angioplasty (ELCA, n = 116 lesions). Automated core laboratory quantitative analysis (QCA) was performed in multiple matched angiographic projections pre and post intervention and at 6 month follow up (overall QCA follow up 93%). Multiple linear regression analysis was employed to determine whether LAD lesion location was associated with greater propensity to luminal renarrowing, independently of lesion severity pre, procedural luminal increase and reference vessel diameter. Because of the large variation in vessel size, lumen renarrowing was measured as relative luminal loss (minimal luminal diameter (MLD) post-follow up/reference diameter pre) and angiographic outcome as relative lumen at follow up (MLD at follow up/reference diameter pre). In multivariate analysis applied to the entire patient population, LAD location was independently associated with greater relative loss and smaller lumen at follow up ($p = 0.007$). However, application of the model to each patient group separately, revealed analogous findings for the DCA ($p = 0.003$) and BA ($p = 0.03$) groups, but no significant association between LAD location and late angiographic results was evident in the PS ($p = 0.18$) or ELCA ($p = 0.55$) groups. Retrospective exclusion of totally occluded lesions at baseline and/or at follow up from the analysis did not appreciable alter these findings.

Conclusion: LAD lesions were independently associated with less favourable late angiographic results after balloon angioplasty or directional atherectomy, whereas late results after Palmaz-Schatz stent implantation or excimer laser angioplasty did not vary with lesion location. In contrast with previous reports, these findings suggest a differential influence of lesion location on late interventional results, depending on the device used. Accordingly further investigation will be required for clarification of this association.

11:30

782-5 Balloon Angioplasty, Palmaz-Schatz Stent, and Directional Coronary Atherectomy for Restenotic Lesions: Retrospective Comparison in a Single Center

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Both Palmaz-Schatz stents (PSS) and directional atherectomy (DCA) are reported to be suitable for treating restenotic lesions and claim to decrease subsequent restenosis. The purpose of this study was to compare in hospital outcome and follow-up (FU) of these two technologies with balloon angioplasty. Records of 1087 patients with restenosis that underwent elective (PSS) implantation (116 patients, 122 lesions), DCA (103 patients, 108 lesions), balloon angioplasty in 868 patients, 965 lesions) from January 1988 to March 1994 were reviewed. Mean follow-up was 1.22 ± 0.73 years.

	PSS	DCA	Balloon	P
Lesion success (%)	117 (95.9)	102 (94.4)	920 (95.3)	0.87
MLD post (mm)	2.87 ± 0.67	2.84 ± 0.77	2.20 ± 0.96	0.0001
In hospital death (%)	1 (0.9)	0 (0.0)	4 (0.5)	0.63
Q-Wave MI (%)	2 (1.8)	1 (1.0)	15 (1.8)	0.85
CABG (%)	5 (4.3)	3 (2.9)	30 (3.5)	0.84
6 months follow-up				
PTCA (%)	31 (35)	30 (31)	247 (31)	0.74
CABG (%)	19 (22)	21 (22)	141 (19)	0.58
Recurrent angina (%)	34 (37)	34 (34)	340 (42)	0.25
Death (%)	9 (8.5)	4 (3.9)	37 (4.3)	0.14